



# USER GUIDE

## FOR 28 WATT BATTERY CONVERTERS (OHMICALLY ISOLATED AND CURRENT LIMITED)

MODEL	STOCK NO.	INPUT	OUTPUT
SM3752	243-1658	12V Battery	12V at 2.4A
SM3753	243-1664	12V Battery	15V at 1.9A
SM3754	243-1670	12V Battery	18V at 1.6A

### GENERAL:

These small but powerful converters provide a source of stabilised low voltage suitable for running many different items of equipment. Their output is ohmically isolated from the vehicle chassis and constant current limited. Continuous operation in current limit is allowed making them suitable for battery charging providing charge time is controlled. Connection to the vehicle battery is by a plug that fits the vehicles cigar lighter socket, and output is by flying lead terminated in a popular 2.5mm concentric plug (similar to RS 486-634).

The converters are mainly designed for use with notebook computers that have two wire input. In such computers, the internal battery charge time is controlled by the computer itself, with the internal battery switched across the input supply for a controlled period. The current delivered to the battery must therefore be limited to a safe level by reduction of voltage. These converters are current limited by allowing their voltage to fall until a pre-set current level is reached (constant output current above a certain level of demand).

When peripherals such as printers are connected to the computer's ports, they may ground the zero volt power bus of the computer. The output isolation of the converter from vehicle ground ensures that dc earth currents do not flow.

### CONNECTION:

**Input:** The converter just plugs into the vehicle via its cigar lighter socket, using the cable mounted plug provided. Only extend the input lead, by using the Direct Wiring Kit SM2790 (RS 597-504). Don't leave the converter plugged in when not in use. It will still slowly discharge the vehicle battery.

**Output:** The output connector, with centre positive, plugs into the equipment if suitable. If the output connector is not appropriate, a different one may be fitted after cutting off the existing one. The output cable has a brown positive wire and a blue negative wire.

### BATTERY DRAIN:

These converters draw about 1 amp from the battery for every 10 watts of actual load applied. When used in current limit at maximum output, input current may reach 3.9A. Start your car periodically for 15 minutes to boost the battery if you use anything for a long time.

### INTERNAL FUSE REPLACEMENT INSTRUCTIONS.

Unplug the Power Adaptor from the vehicle battery (cigar lighter connection). Remove the lid of the Adaptor (4 screws) and locate on the circuit board the 20mm 6.3A fuse (RS 419-808 or similar). Replace it with a new one after levering the old one out with a suitable tool. Replace the lid and retaining screws before connecting to the vehicle battery.

## SPECIFICATION:

<b>Output:</b>	<b>SM3752</b>	<b>SM3753</b>	<b>SM3754</b>
Factory set voltage (10% load):	12.1V $\pm$ 0.2V	15.1V $\pm$ 0.3V	18.1V $\pm$ 0.3V
Variation for static 10-90% load change:	300mV max.	250mV max.	250mV max.
Variation for static 2V input change:	50mV max.	50mV max.	50mV max.
Full load current:	2.4A	1.9A	1.6A
Current limit:	3A $\pm$ 0.5A	2.4A $\pm$ 0.4A	2A $\pm$ 0.33A
Low frequency ripple:	100mV max.	100mV max.	100mV max.
Voltage temperature coefficient:	2.4mV/C typ.	3.0mV/C typ.	3.6mV/C typ.

### Input:

DC Input Supply Range, continuous:	10.6VDC to 15VDC
DC Input Supply Range, 1 minute:	10VDC to 18VDC
Input Current per 10W loading:	1A (as a guide)
Input Current, No Load:	0.1A typical
Fuse rating:	6.3A T, 5 x 20 mm (similar to RS 419-808).

### General:

DC input to output isolation:	500Kohm minimum at $\pm$ 63VDC maximum.
Protection:	Output constant current limit.
Size:	Length 111mm by Width 60mm by Height 30mm.
Weight:	Weight 380 grams including wires.
Ambient Temp Range:	-10 to +30C operating, -20 to +50C storage.
Nominal input lead length:	0.7 metres.
Nominal output lead length:	0.6 metres.
Manufacturer:	U K made by Switched Mode Ltd., Reading, Berks.

### Specification Notes:

- 1) The main variation of output voltage with load is due to the resistance of the output cable. An internal potentiometer is available to adjust the output voltage over a range of  $\pm$  5% to compensate.
- 2) The output current limit is deliberately made a function of unit temperature to maximise delivered charge. Output current will fall, still within the quoted range as the unit attains working temperature.
- 3) Case temperature change must be taken into account when calculating output variation using the quoted coefficient.
- 4) The adaptor is designed to run with a case temperature approaching 60C under heavy load conditions.

**CAUTION:** This converter is supplied on the basis of the user determining the suitability for the purpose for which it is to be used. Allow adequate ventilation to assist unit cooling. Removal of the input cigar plug will void the warranty.

**WARNING:** Do not reverse input polarity. Do not expose to moisture. Incorrectly wired batteries can cause fire hazard. These converters are only suitable for use with vehicles having the negative of the battery connected to chassis. Not for life dependent use.